

SEQUENCE LISTING

<110> Darst, Seth A
Zhang, Gongyi
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Minakin, Leonid
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<120> A CRYSTAL OF BACTERIAL CORE RNA POLYMERASE AND METHODS
OF USE THEREOF

<130> 600-1-258

<140> UNASSIGNED

<141> 1999-09-15

<160> 4

<170> PatentIn Ver. 2.0

<210> 1

<211> 1525

<212> PRT

<213> Thermus aquaticus

<220>

<221> SITE

<222> (1247)

<223> Any amino acid can be at this position

<400> 1

Met Lys Lys Glu Val Arg Lys Val Arg Ile Ala Leu Ala Ser Pro Glu
1 5 10 15

Lys Ile Arg Ser Trp Ser Tyr Gly Glu Val Glu Lys Pro Glu Thr Ile
20 25 30

Asn Tyr Arg Thr Leu Lys Pro Glu Arg Asp Gly Leu Phe Asp Glu Arg
35 40 45

Ile Phe Gly Pro Ile Lys Asp Tyr Glu Cys Ala Cys Gly Lys Tyr Lys
50 55 60

Arg Gln Arg Phe Glu Gly Lys Val Cys Glu Arg Cys Gly Val Glu Val
65 70 75 80

Thr Arg Ser Ile Val Arg Arg Tyr Arg Met Gly His Ile Glu Leu Ala
85 90 95

Thr Pro Ala Ala His Ile Trp Phe Val Lys Asp Val Pro Ser Lys Ile
100 105 110

Gly Thr Leu Leu Asp Leu Phe Ala Thr Glu Leu Glu Gln Val Leu Tyr
115 120 125

Phe Asn Lys Tyr Ile Val Leu Asp Pro Lys Gly Ala Val Leu Asp Gly
130 135 140

Val Pro Val Glu Lys Arg Gln Leu Leu Thr Asp Glu Glu Tyr Arg Glu
145 150 155 160

Leu Arg Tyr Gly Lys Gln Glu Thr Tyr Pro Leu Pro Ala Gly Val Asp
165 170 175

Ala Leu Val Lys Asp Gly Glu Glu Val Val Lys Gly Gln Glu Leu Ala
180 185 190

Pro Gly Val Val Ser Arg Met Asp Gly Val Gly Ser Leu Pro Leu Pro
195 200 205

Arg Arg Val Arg Val Asp Tyr Leu Arg Lys Glu Arg Ala Ala Leu Arg
210 215 220

Ile Pro Leu Ser Ala Trp Val Glu Lys Glu Pro Tyr Arg Pro Gly Glu
225 230 235 240

Val Leu Ala Glu Leu Ser Glu Pro Tyr Leu Phe Arg Ala Glu Glu Ser
245 250 255

Gly Val Val Glu Leu Lys Asp Leu Ala Glu Gly His Leu Ile Tyr Leu
260 265 270

Arg Gln Glu Glu Glu Val Val Ala Arg Tyr Phe Leu Pro Ala Gly Met
275 280 285

Thr Pro Leu Val Val Glu Gly Glu Ile Val Glu Val Gly Gln Pro Leu
290 295 300

Ala Glu Gly Lys Gly Leu Leu Arg Leu Pro Arg His Met Thr Ala Lys
305 310 315 320

Glu Val Glu Ala Glu Glu Gly Asp Ser Val His Leu Thr Leu Phe
325 330 335

Leu Glu Trp Thr Glu Pro Lys Asp Tyr Lys Val Ala Pro His Met Asn
340 345 350

Val Ile Val Pro Glu Gly Ala Lys Val Gln Ala Gly Glu Lys Ile Val
 355 360 365
 Ala Ala Ile Asp Pro Glu Glu Glu Val Ile Ala Gln Ala Glu Gly Val
 370 375 380
 Val His Leu His Glu Pro Ala Ser Ile Leu Val Val Lys Ala Arg Val
 385 390 395 400
 Tyr Pro Phe Glu Asp Asp Val Glu Val Thr Thr Gly Asp Arg Val Ala
 405 410 415
 Pro Gly Asp Val Leu Ala Asp Gly Gly Lys Val Lys Ser Glu Ile Tyr
 420 425 430
 Gly Arg Val Glu Val Asp Leu Val Arg Asn Val Val Arg Val Val Glu
 435 440 445
 Ser Tyr Asp Ile Asp Ala Arg Met Gly Ala Glu Ala Ile Gln Glu Leu
 450 455 460
 Leu Lys Glu Leu Asp Leu Glu Lys Leu Glu Arg Glu Leu Leu Glu Glu
 465 470 475 480
 Met Lys His Pro Ser Arg Ala Arg Arg Ala Lys Ala Arg Lys Arg Leu
 485 490 495
 Glu Val Val Arg Ala Phe Leu Asp Ser Gly Asn Arg Pro Glu Trp Met
 500 505 510
 Ile Leu Glu Ala Val Pro Val Leu Pro Pro Asp Leu Arg Pro Met Val
 515 520 525
 Gln Val Asp Gly Gly Arg Phe Ala Thr Ser Asp Leu Asn Asp Leu Tyr
 530 535 540
 Arg Arg Leu Ile Asn Arg Asn Asn Arg Leu Lys Lys Leu Leu Ala Gln
 545 550 555 560
 Gly Ala Pro Glu Ile Ile Ile Arg Asn Glu Lys Arg Met Leu Gln Glu
 565 570 575
 Ala Val Asp Ala Val Ile Asp Asn Gly Arg Arg Gly Ser Pro Val Thr
 580 585 590
 Asn Pro Gly Ser Glu Arg Pro Leu Arg Ser Leu Thr Asp Ile Leu Ser
 595 600 605

Gly	Lys	Gln	Gly	Arg	Phe	Arg	Gln	Asn	Leu	Leu	Gly	Lys	Arg	Val	Asp	610	615	620	
Tyr	Ser	Gly	Arg	Ser	Val	Ile	Val	Val	Gly	Pro	Gln	Leu	Lys	Leu	His	625	630	635	640
Gln	Cys	Gly	Leu	Pro	Lys	Arg	Met	Ala	Leu	Glu	Leu	Phe	Lys	Pro	Phe	645	650	655	
Leu	Leu	Lys	Lys	Met	Glu	Glu	Lys	Ala	Phe	Ala	Pro	Asn	Val	Lys	Ala	660	665	670	
Ala	Arg	Arg	Met	Leu	Glu	Arg	Gln	Arg	Asp	Ile	Lys	Asp	Glu	Val	Trp	675	680	685	
Asp	Ala	Leu	Glu	Glu	Val	Ile	His	Gly	Lys	Val	Val	Leu	Leu	Asn	Arg	690	695	700	
Ala	Pro	Thr	Leu	His	Arg	Leu	Gly	Ile	Gln	Ala	Phe	Gln	Pro	Val	Leu	705	710	715	720
Val	Glu	Gly	Gln	Ser	Ile	Gln	Leu	His	Pro	Leu	Val	Cys	Glu	Ala	Phe	725	730	735	
Asn	Ala	Asp	Phe	Asp	Gly	Asp	Gln	Met	Ala	Val	His	Val	Pro	Leu	Ser	740	745	750	
Ser	Phe	Ala	Gln	Ala	Glu	Ala	Arg	Ile	Gln	Met	Leu	Ser	Ala	His	Asn	755	760	765	
Leu	Leu	Ser	Pro	Ala	Ser	Gly	Glu	Pro	Leu	Ala	Lys	Pro	Ser	Arg	Asp	770	775	780	
Ile	Ile	Leu	Gly	Leu	Tyr	Tyr	Ile	Thr	Gln	Val	Arg	Lys	Glu	Lys	Lys	785	790	795	800
Gly	Ala	Gly	Met	Ala	Phe	Ala	Thr	Pro	Glu	Glu	Ala	Leu	Ala	Ala	Tyr	805	810	815	
Glu	Arg	Gly	Glu	Val	Ala	Leu	Asn	Ala	Pro	Ile	Val	Val	Ala	Gly	Arg	820	825	830	
Glu	Thr	Ser	Val	Gly	Arg	Leu	Lys	Phe	Val	Phe	Ala	Asn	Pro	Asp	Glu	835	840	845	
Ala	Leu	Leu	Ala	Val	Ala	His	Gly	Leu	Leu	Asp	Leu	Gln	Asp	Val	Val	850	855	860	

Thr Val Arg Tyr Leu Gly Arg Arg Leu Glu Thr Asn Pro Gly Arg Ile
865 870 875 880

Leu Phe Ala Arg Ile Val Gly Glu Ala Val Gly Asp Glu Lys Val Ala
885 890 895

Gln Glu Leu Ile Gln Met Asp Val Pro Gln Glu Lys Asn Ser Leu Lys
900 905 910

Asp Leu Val Tyr Gln Ala Phe Leu Arg Leu Gly Met Glu Lys Thr Ala
915 920 925

Arg Leu Leu Asp Ala Leu Lys Tyr Tyr Gly Phe Thr Leu Ser Thr Thr
930 935 940

Ser Gly Ile Ile Thr Ile Gly Ile Asp Asp Ala Val Ile Pro Glu Glu
945 950 955 960

Lys Gln Arg Tyr Leu Glu Glu Ala Asp Arg Lys Leu Arg Gln Ile Glu
965 970 975

Gln Ala Tyr Glu Met Gly Phe Leu Thr Asp Arg Glu Arg Tyr Asp Gln
980 985 990

Val Ile Gln Leu Trp Thr Glu Thr Thr Glu Lys Val Thr Gln Ala Val
995 1000 1005

Phe Asn Asn Phe Glu Glu Asn Tyr Pro Phe Asn Pro Leu Tyr Val Met
1010 1015 1020

Ala Gln Ser Gly Ala Arg Gly Asn Pro Gln Gln Ile Arg Gln Leu Cys
1025 1030 1035 1040

Gly Met Arg Gly Leu Met Gln Lys Pro Ser Gly Glu Thr Phe Glu Val
1045 1050 1055

Pro Val Arg Ser Ser Phe Arg Glu Gly Leu Thr Val Leu Glu Tyr Phe
1060 1065 1070

Ile Ser Ser His Gly Ala Arg Lys Gly Gly Ala Asp Thr Ala Leu Arg
1075 1080 1085

Thr Ala Asp Ser Gly Tyr Leu Thr Arg Lys Leu Val Asp Val Ala His
1090 1095 1100

Glu Ile Val Val Arg Glu Ala Asp Cys Gly Thr Thr Lys Tyr Ile Ser
1105 1110 1115 1120

Val Pro Leu Phe Gln Met Asp Glu Val Thr Arg Thr Leu Arg Leu Arg
1125 1130 1135

Lys Arg Ser Asp Ile Glu Ser Gly Leu Tyr Gly Arg Val Leu Ala Arg
1140 1145 1150

Glu Val Glu Ala Leu Gly Arg Arg Leu Glu Glu Gly Arg Tyr Leu Ser
1155 1160 1165

Leu Glu Asp Val His Phe Leu Ile Lys Ala Ala Glu Ala Gly Glu Val
1170 1175 1180

Arg Glu Val Pro Val Arg Ser Pro Leu Thr Cys Gln Thr Arg Tyr Gly
1185 1190 1195 1200

Val Cys Gln Lys Cys Tyr Gly Tyr Asp Leu Ser Met Ala Arg Pro Val
1205 1210 1215

Ser Ile Gly Glu Ala Val Gly Val Val Ala Ala Glu Ser Ile Gly Glu
1220 1225 1230

Pro Gly Thr Gln Leu Thr Met Arg Thr Phe His Thr Gly Gly Xaa Ala
1235 1240 1245

Val Gly Thr Asp Ile Thr Gln Gly Leu Pro Arg Val Ile Glu Leu Phe
1250 1255 1260

Glu Ala Arg Arg Pro Lys Ala Lys Ala Val Ile Ser Glu Ile Asp Gly
1265 1270 1275 1280

Val Val Arg Ile Glu Glu Gly Glu Asp Arg Leu Ser Val Phe Val Glu
1285 1290 1295

Ser Glu Gly Phe Ser Lys Glu Tyr Lys Leu Pro Lys Asp Ala Arg Leu
1300 1305 1310

Leu Val Lys Asp Gly Asp Tyr Val Glu Ala Gly Gln Pro Leu Thr Arg
1315 1320 1325

Gly Ala Ile Asp Pro His Gln Leu Leu Glu Ala Lys Gly Pro Glu Ala
1330 1335 1340

Val Glu Arg Tyr Leu Val Asp Glu Ile Gln Lys Val Tyr Arg Ala Gln
1345 1350 1355 1360

Gly Val Lys Leu His Asp Lys His Ile Glu Ile Val Val Arg Gln Met
1365 1370 1375

Leu Lys Tyr Val Glu Val Thr Asp Pro Gly Asp Ser Pro Leu Leu Glu
 1380 1385 1390

Gly Gln Val Leu Glu Lys Trp Asp Val Glu Ala Leu Asn Glu Arg Leu
 1395 1400 1405

Ile Ala Glu Gly Lys Val Pro Val Ala Trp Lys Pro Leu Leu Met Gly
 1410 1415 1420

Val Thr Lys Ser Ala Leu Ser Thr Lys Ser Trp Leu Ser Ala Ala Ser
 1425 1430 1435 1440

Phe Gln Asn Thr Thr His Val Leu Thr Glu Ala Ala Ile Ala Gly Lys
 1445 1450 1455

Lys Asp Glu Leu Ile Gly Leu Lys Glu Asn Val Ile Leu Gly Arg Leu
 1460 1465 1470

Ile Pro Ala Gly Thr Gly Ser Asp Phe Val Arg Phe Thr Gln Val Val
 1475 1480 1485

Asp Gln Arg Thr Leu Lys Ala Ile Glu Glu Ala Arg Lys Glu Ala Val
 1490 1495 1500

Glu Ala Lys Glu Lys Glu Ala Pro Arg Arg Pro Val Arg Arg Glu Gln
 1505 1510 1515 1520

Pro Gly Lys Gly Leu
 1525

<210> 2

<211> 1119

<212> PRT

<213> Thermus aquaticus

<220>

<221> SITE

<222> (695)..(696)

<223> Any amino acids can be at these two positions.

<400> 2

Met Lys Ile Lys Arg Phe Gly Arg Ile Arg Glu Val Ile Pro Leu Pro
 1 5 10 15

Pro Leu Thr Glu Ile Gln Val Glu Ser Tyr Lys Lys Ala Leu Gln Ala
 20 25 30

Asp Val Pro Pro Glu Lys Arg Glu Asn Val Gly Ile Gln Ala Ala Phe
 35 40 45

Lys Glu Thr Phe Pro Ile Glu Glu Gly Asp Lys Gly Lys Gly Gly Leu
 50 55 60

Val Leu Asp Phe Leu Glu Tyr Arg Ile Gly Asp Pro Pro Phe Ser Gln
 65 70 75 80

Asp Glu Cys Arg Glu Lys Asp Leu Thr Tyr Gln Ala Pro Leu Tyr Ala
 85 90 95

Arg Leu Gln Leu Ile His Lys Asp Thr Gly Leu Ile Lys Glu Asp Glu
 100 105 110

Val Phe Leu Gly His Leu Pro Leu Met Thr Glu Asp Gly Ser Phe Ile
 115 120 125

Ile Asn Gly Ala Asp Arg Val Ile Val Ser Gln Ile His Arg Ser Pro
 130 135 140

Gly Val Tyr Phe Thr Pro Asp Pro Ala Arg Pro Gly Arg Tyr Ile Ala
 145 150 155 160

Ser Ile Ile Pro Leu Pro Lys Arg Gly Pro Trp Ile Asp Leu Glu Val
 165 170 175

Glu Ala Ser Gly Val Val Thr Met Lys Val Asn Lys Arg Lys Phe Pro
 180 185 190

Leu Val Leu Leu Leu Arg Val Leu Gly Tyr Asp Gln Glu Thr Leu Val
 195 200 205

Arg Glu Leu Ser Ala Tyr Gly Asp Leu Val Gln Gly Leu Leu Asp Glu
 210 215 220

Ala Val Leu Ala Met Arg Pro Glu Glu Ala Met Val Arg Leu Phe Thr
 225 230 235 240

Leu Leu Arg Pro Gly Asp Pro Pro Lys Lys Asp Lys Ala Leu Ala Tyr
 245 250 255

Leu Phe Gly Leu Leu Ala Asp Pro Lys Arg Tyr Asp Leu Gly Glu Ala
 260 265 270

Gly Arg Tyr Lys Ala Glu Glu Lys Leu Gly Val Gly Leu Ser Gly Arg
 275 280 285

Thr Leu Val Arg Phe Glu Asp Gly Glu Phe Lys Asp Glu Val Phe Leu
 290 295 300
 Pro Thr Leu Arg Tyr Leu Phe Ala Leu Thr Ala Gly Val Pro Gly His
 305 310 315 320
 Glu Val Asp Asp Ile Asp His Leu Gly Asn Arg Arg Ile Arg Thr Val
 325 330 335
 Gly Glu Leu Met Ala Asp Gln Phe Arg Val Gly Leu Ala Arg Leu Ala
 340 345 350
 Arg Gly Val Arg Glu Arg Met Val Met Gly Ser Pro Asp Thr Leu Thr
 355 360 365
 Pro Ala Lys Leu Val Asn Ser Arg Pro Leu Glu Ala Ala Leu Arg Glu
 370 375 380
 Phe Phe Ser Arg Ser Gln Leu Ser Gln Phe Lys Asp Glu Thr Asn Pro
 385 390 395 400
 Leu Ser Ser Leu Arg His Lys Arg Arg Ile Ser Ala Leu Gly Pro Gly
 405 410 415
 Gly Leu Thr Arg Glu Arg Ala Gly Phe Asp Val Arg Asp Val His Arg
 420 425 430
 Thr His Tyr Gly Arg Ile Cys Pro Val Glu Thr Pro Glu Gly Ala Asn
 435 440 445
 Ile Gly Leu Ile Thr Ser Leu Ala Ala Tyr Ala Arg Val Asp Ala Leu
 450 455 460
 Gly Phe Ile Arg Thr Pro Tyr Arg Arg Val Lys Asn Gly Val Val Thr
 465 470 475 480
 Glu Glu Val Val Tyr Met Thr Ala Ser Glu Glu Asp Arg Tyr Thr Ile
 485 490 495
 Ala Gln Ala Asn Thr Pro Leu Glu Gly Asp Arg Ile Ala Thr Asp Arg
 500 505 510
 Val Val Ala Arg Arg Arg Gly Glu Pro Val Ile Val Ala Pro Glu Glu
 515 520 525
 Val Glu Phe Met Asp Val Ser Pro Lys Gln Val Phe Ser Leu Asn Thr
 530 535 540

Asn Leu Ile Pro Phe Leu Glu His Asp Asp Ala Asn Arg Ala Leu Met
545 550 555 560

Gly Ser Asn Met Gln Thr Gln Ala Val Pro Leu Ile Arg Ala Gln Ala
565 570 575

Pro Val Val Met Thr Gly Leu Glu Glu Arg Val Val Arg Asp Ser Leu
580 585 590

Ala Ala Leu Tyr Ala Glu Glu Asp Gly Glu Val Val Lys Val Asp Gly
595 600 605

Thr Arg Ile Ala Val Arg Tyr Glu Asp Gly Arg Leu Val Glu His Pro
610 615 620

Leu Arg Arg Tyr Ala Arg Ser Asn Gln Gly Thr Ala Phe Asp Gln Arg
625 630 635 640

Pro Arg Val Arg Val Gly Gln Arg Val Lys Lys Gly Asp Leu Leu Ala
645 650 655

Asp Gly Pro Ala Ser Glu Glu Gly Phe Leu Ala Leu Gly Gln Asn Val
660 665 670

Leu Val Ala Ile Met Pro Phe Asp Gly Tyr Asn Phe Glu Asp Ala Ile
675 680 685

Val Ile Ser Glu Glu Leu Xaa Xaa Arg Asp Phe Tyr Thr Ser Ile His
690 695 700

Ile Glu Arg Tyr Glu Ile Glu Ala Arg Asp Thr Lys Leu Gly Pro Glu
705 710 715 720

Arg Ile Thr Arg Asp Ile Pro His Leu Ser Glu Ala Ala Leu Arg Asp
725 730 735

Leu Asp Glu Glu Gly Ile Val Arg Ile Gly Ala Glu Val Lys Pro Gly
740 745 750

Asp Ile Leu Val Gly Arg Thr Ser Phe Lys Gly Glu Gln Glu Pro Ser
755 760 765

Pro Glu Glu Arg Leu Leu Arg Ser Ile Phe Gly Glu Lys Ala Arg Asp
770 775 780

Val Lys Asp Thr Ser Leu Arg Val Pro Pro Gly Glu Gly Gly Ile Val
785 790 795 800

Val Gly Arg Leu Arg Leu Arg Arg Gly Asp Pro Gly Val Glu Leu Lys
 805 810 815
 Pro Gly Val Arg Glu Val Val Arg Val Phe Val Ala Gln Lys Arg Lys
 820 825 830
 Leu Gln Val Gly Asp Lys Leu Ala Asn Arg His Gly Asn Lys Gly Val
 835 840 845
 Val Ala Lys Ile Leu Pro Val Glu Asp Met Pro His Leu Pro Asp Gly
 850 855 860
 Thr Pro Val Asp Val Ile Leu Asn Pro Leu Gly Val Pro Ser Arg Met
 865 870 875 880
 Asn Leu Gly Gln Ile Leu Glu Thr His Leu Gly Leu Ala Gly Tyr Phe
 885 890 895
 Leu Gly Gln Arg Tyr Ile Ser Pro Val Phe Asp Gly Ala Thr Glu Pro
 900 905 910
 Glu Ile Lys Glu Leu Leu Ala Glu Ala Phe Asn Leu Tyr Phe Gly Lys
 915 920 925
 Arg Gln Gly Glu Gly Phe Gly Val Asp Lys Arg Glu Lys Glu Val Leu
 930 935 940
 Ala Arg Ala Glu Lys Leu Gly Leu Val Ser Pro Gly Lys Ser Pro Glu
 945 950 955 960
 Glu Gln Leu Lys Glu Leu Phe Asp Leu Gly Lys Val Val Leu Tyr Asp
 965 970 975
 Gly Arg Thr Gly Glu Pro Phe Glu Gly Pro Ile Val Val Gly Gln Met
 980 985 990
 Phe Ile Met Lys Leu Tyr His Met Val Glu Asp Lys Met His Ala Arg
 995 1000 1005
 Ser Thr Gly Pro Tyr Ser Leu Ile Thr Gln Gln Pro Leu Gly Gly Lys
 1010 1015 1020
 Ala Gln Phe Gly Gly Gln Arg Phe Gly Glu Met Glu Val Trp Ala Leu
 1025 1030 1035 1040
 Glu Ala Tyr Gly Ala Ala His Thr Leu Gln Glu Met Leu Thr Ile Lys
 1045 1050 1055

Ser Asp Asp Ile Glu Gly Arg Asn Ala Ala Tyr Gln Ala Ile Ile Lys
 1060 1065 1070

Gly Glu Asp Val Pro Glu Pro Ser Val Pro Glu Ser Phe Arg Val Leu
 1075 1080 1085

Val Lys Glu Leu Gln Ala Leu Ala Leu Asp Val Gln Thr Leu Asp Glu
 1090 1095 1100

Lys Asp Asn Pro Val Asp Ile Phe Glu Gly Leu Ala Ser Lys Arg
 1105 1110 1115

<210> 3

<211> 313

<212> PRT

<213> Thermus aquaticus

<400> 3

Met Leu Glu Ser Lys Leu Lys Ala Pro Val Phe Thr Ala Thr Thr Gln
 1 5 10 15

Gly Asp His Tyr Gly Glu Phe Val Leu Glu Pro Leu Glu Arg Gly Phe
 20 25 30

Gly Val Thr Leu Gly Asn Pro Leu Arg Arg Ile Leu Leu Ser Ser Ile
 35 40 45

Pro Gly Thr Ala Val Thr Ser Val Tyr Ile Glu Asp Val Leu His Glu
 50 55 60

Phe Ser Thr Ile Pro Gly Val Lys Glu Asp Val Val Glu Ile Ile Leu
 65 70 75 80

Asn Leu Lys Glu Leu Val Val Arg Phe Leu Asp Pro Arg Trp Arg Thr
 85 90 95

Thr Leu Ile Leu Arg Ala Glu Gly Pro Lys Glu Val Arg Ala Val Asp
 100 105 110

Phe Thr Pro Ser Ala Asp Val Glu Ile Met Asn Pro Asp Leu His Ile
 115 120 125

Ala Thr Leu Glu Glu Gly Gly Lys Leu Tyr Met Glu Val Arg Val Asp
 130 135 140

Arg Gly Val Gly Tyr Val Pro Ala Glu Arg His Gly Ile Lys Asp Arg

145

150

155

160

Ile Asn Ala Ile Pro Val Asp Ala Ile Phe Ser Pro Val Arg Arg Val
 165 170 175

Ala Phe Gln Val Glu Asp Thr Arg Leu Gly Gln Arg Thr Asp Leu Asp
 180 185 190

Lys Leu Thr Leu Arg Ile Trp Thr Asp Gly Ser Val Thr Pro Leu Glu
 195 200 205

Ala Leu Asn Gln Ala Val Ala Ile Leu Lys Glu His Leu Asn Tyr Phe
 210 215 220

Ala Asn Pro Glu Ala Ser Leu Leu Pro Thr Pro Glu Val Ser Lys Gly
 225 230 235 240

Glu Lys Arg Glu Ser Ala Glu Glu Asp Leu Asp Leu Pro Leu Glu Glu
 245 250 255

Leu Gly Leu Ser Thr Arg Val Leu His Ser Leu Lys Glu Glu Gly Ile
 260 265 270

Glu Ser Val Arg Ala Leu Leu Ala Leu Asn Leu Lys Asp Leu Arg Asn
 275 280 285

Ile Pro Gly Ile Gly Glu Arg Ser Leu Glu Glu Ile Arg Gln Ala Leu
 290 295 300

Ala Lys Lys Gly Phe Thr Leu Lys Glu
 305 310

<210> 4

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: natural part
 of bacterial proteins

<400> 4

Asn Ala Asp Phe Asp Gly Asp
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